DOCUMENT RESUME

ED 129 674 SO 009 448

AUTHOR Rindfuss, Ronald R.; Bumpass, Larry L.

TITLE Fertility during Marital Disruption. Discussion Paper 343-76.

INSTITUTION Wisconsin Univ., Madison. Inst. for Research on Poverty.
SPONS AGENCY National Institutes of Health (DHEW), Bethesda, Md.; National Inst. of Child Health and Human Development (NIH), Bethesda, Md.
REPORT NO IRP-DP-343-76
PUB DATE Apr 76
GRANT HD05876; HD07682
NOTE 33p.; Paper presented at the annual meeting of the Population Association of America (Montreal, Quebec, April 1976)

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS Birth Rate; Children; Comparative Analysis; Females; *Illegitimate Births; *Marital Instability; *Marital Status; *Population Trends; *Poverty Research; Predictor Variables; Problems; Sex Role; Social Science Research; Social Status; Sociocultural Patterns; Statistical Analysis; Tables (Data); Trend Analysis

ABSTRACT

The frequent occurrence of childbirth during periods of marital disruption is discussed. Life table procedures based on 1970 information show, from a sample of 1,054 women, that slightly more than 25% of separated, divorced, or widowed women had given birth within 48 months of marital disruption. The variables affecting these statistics are described in terms of race, education, parity, and, most importantly, age at time of disruption. A multivariate analysis is used to explore the cumulative prevalance of having experienced intermarital fertility among women over age 30. Four possible explanations for childbirth phenomena are given: "last chance" pregnancies that are attempts to keep disintegrating marriages together, unplanned pregnancy, careless contraception, and births fathered by someone other than the previous or anticipated spouse. It is concluded that the prevalence of childbirth during marital disruption and the social policy issues connected with such births rank it in importance with illegitimacy. References are included in the paper. (Author/DB)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED129674

INSTITUTE FOR RESEARCH ON POVERTY DISCUSSION PAPERS

343-76

JUN 1976
ERIC/CRESS
RECEIVED

FERTILITY DURING MARITAL DISRUPTION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

RONALD R. RINDFUSS
LARRY L. BUMPASS

SO009148

UNIVERSITY OF WISCONSIN - MADISON

FERTILITY DURING MARITAL DISRUPTION

Ronald R. Rindfuss

Larry L. Bumpass

April 1976

Presented at the annual meetings of the Population Association of America, Montreal, April 1976. The analysis reported was supported in part by a National Institutes of Health grant, No. HD07682; by a "Center for Population Research" grant, No. HD05876, to the Center for Demography and Ecology from the Center for Population Research of the National Institute of Child Health and Human Development; and by funds granted to the Institute for Research on Poverty of the University of Wisconsin-Madison by the Department of Health, Education, and Welfare pursuant to the Economic Opportunity Act of 1964. The assistance of Sue Anne Cochrane, Cheryl Knobeloch, Margaret Knoll, and Baraba Witt is gratefully acknowledged.

Abstract

Childbirth during marital disruption is found to be a surprisingly frequent occurrence. Among twice-married women in both the 1965 and 1970 National Fertility Studies, more than a fourth had given birth between separation and remarriage. Life table procedures are used to estimate the incidence of intermarital fertility based on the experience of women in 1970 whose marriages had been disrupted, including those currently separated, divorced, or widowed. The cumulative percent experiencing an intermarital birth increases most rapidly during the first twelve months after disruption and then more gradually thereafter. Age at disruption is found to be a major variable affecting this process, though important differences are also found by a number of other variables including race, education, and parity. The cumulative prevalence of having experienced intermarital fertility among women over age 30 is explored in a multivariate analysis. Both the prevalence and the social policy issues involved suggest this phenomenon may be similar to illegitimacy in importance.

It is ironic that fertility outside of marriage is becoming a larger part of all childbearing at the very time that models of planned family building within marriage are increasingly appropriate. The fact that reductions in unplanned fertility have been disproportionately experienced among the married underscores the importance to the sociology of fertility of an understanding of the fertility of the unmarried. This paper seeks to draw attention to a heretofore neglected aspect of nonmarital fertility -- births that occur during periods of marital disruption.

A number of authors have alluded to the existence of this component of illegitimate fertility (Hartley, 1975; Sklar and Berkov, 1974; Cutright, 1973; Gendell and van der Tak, 1973), but relatively little is known about its prevalence or character in the United States. A recent Current Population Survey tabulation indicates that about 8 percent of the births to twice-married women in recent cohorts occurred between the dates of their divorce and remarriage (U.S. Bureau of the Census, 1974). On the one hand, many of these births may not be illegitimate because they were conceived in the former marriage.[1] On the other hand, this estimate understates the extent of childbearing during marital disruption because it excludes births between separation and divorce. We think that the study of this topic should include all childbearing that occurs between a separation and a subsequent remarriage. The reason is that childbirth during a period of separation for reasons of marital discord, just like childbirth during a period of divorce or widowhood, results in a situation where neither the child nor the mother have a father or husband, respectively. Separation can be brought about either because of marital discord or because of the death of the husband. The life setting in which such births occur, and the associated future chances of the mothers and children, may have more

in common with illegitimate fertility than with marital family building even though the majority are not illegitimate in legal terms.

The prevalence of the experience of fertility between separation and remarriage is great enough to be significant to both the sociology of fertility and the life experiences of United States women and children. About a quarter of the remarried women in the 1970 National Fertility Study[2] report a birth during a period of marital disruption. Confidence in this finding is reinforced by its nearly exact replication in the 1965 National Fertility Study data.[3] In both sets of data, about 11 percent of twice-married women had given birth between separation and divorce, with an additional 14 percent having a birth between divorce and remarriage. (The latter figure is roughly consistent with the CPS estimate of the proportion of the fertility of twice-married women that occurred between divorce and remarriage.) In this paper, we examine the incidence and correlates of intermarital fertility with data from the 1970 National Fertility Study. Before presenting our findings, it is useful to consider a number of possible explanations for intermarital fertility.

Potential Explanations

There are a number of potential explanations for this phenomenon which we review here. While we will be unable to speak directly to any of them with our data, a careful documentation of the distribution and character of intermarital fertility should suggest leads for further inquiry. One possibility is that these births reflect a substantial incidence of "last chance" pregnancies that are attempts to keep disintegrating marriages intact. To the extent that contraception is controlled by the woman, pregnancy might seem to be a powerful means of

control to some who wish to avoid a marital break-up. Whatever the direct feelings of responsibility that pregnancy might evoke in the husband, these would likely be reinforced by the opinions of significant others. In recognition of some potential utility of pregnancy in the conflict, chance-taking might appear to some as the most desirable option, leaving the outcome "up to fate" (Luker, 1975).

If such "last chance" pregnancies were occurring, we would expect intermarital births to cluster near the dates of disruption. That intermarital births cluster near the date of disruption can be seen in Table 1. This table shows the distribution of the occurrence of intermarital births in relation to date of separation and date of remarriage for the first intermarital births occurring in closed periods of marital disruption following the first separation -- that is, an interval begun by the first separation and terminated by a remarriage. More than two-thirds of the births occur within a year following separation; such a clustering is not evident with respect to remarriage. But there are explanations other than the "last chance" possibility that could account for a tendency of intermarital births to cluster near the date of disruption. These other possibilities are discussed below.

Implicit in the above discussion is the assumption that sexual relationships between spouses are not completely terminated by separation. While we know remarkably little about the separation-divorce procedure, it is reasonable to suppose that the conflicted period often may involve repeated visits, whether in hopes of reconciliation or just as a phasing out of a customary relationship. This must surely be the case prior to divorce, when sexual access remains defined as socially legitimate, and perhaps continues after divorce during the period of accommodation to the

TABLE 1. For women with an intermarital birth and a second marriage, percent distribution of months between separation and the first intermarital birth by months between this birth and remarriage.

Months between Birth and Remarriage	Months between Separation and Birth					
	<12	12-23	24-35	36-47	48+	Total
<12	12	4	4	2	2	24
12-23	14	3	1	1	1	20
24-35	14	1	1	1	1	18
36-47	9	1	1	-	1	11
48+	20	4	2	1	-	27
Total	69	13	9	5	4	100

Number of respondents = 164*

* The 1970 National Fertility Study oversampled black women. Consequently, a weighting system based on Current Population Reports was utilized in calculating statistics for the total sample. In this and all subsequent tables, the number of cases reported is unweighted. Other nonwhites are included in the total.

divorced status. This suggests two additional and related types of explanations for the prevalence of intermarital fertility. First, we know that unplanned pregnancy has been the experience of the majority of United States women, especially during the early years of marriage. We also know that marital disruption is experienced early by many. Given some level of periodic sexual exposure over the period just prior to separation and continuing into divorce, intermarital births may simply be the consequence of the intersection of fertility histories by marital disruption. To the extent that this were the case, we might expect these births to occur to younger women because of the inverse association of age and accidental pregnancy. Over a quarter of these births occurred to teenage women, and two-thirds to women under age 25; one-third were first births. Thus intermarital fertility is occurring to women at the ages and life cycle stages when accidental pregnancy is most common.

But shouldn't contraception be practiced more diligently by those facing marital disruption? This brings us to another type of explanation. There is good reason to think the use of contraception might be less effective in the post-separation period, quite apart from the "last chance" possibility discussed earlier. After separation, and especially after divorce, contraceptive behavior takes on the costs of self-definition that are experienced by unmarried women (Luker, 1975; Miller, 1973). That is, to continue taking the pill or to keep an IUD in place is for a woman to acknowledge to herself and others that she expects sexual intercourse to occur. To the extent that such reticence about contraception is involved, intermarital fertility may resemble illegitimate fertility in its etiology as well as in some of its consequences. When a woman is not protected by the pill or IUD, the existence of conflict and

the consequent effects on communication and cooperation may reduce the likelihood of effective use of other methods (Rainwater, 1965).

A final explanation might be that intermarital births are fathered by someone other than the former spouse, and perhaps are a factor in the marital dissolution. Is the intermarital fertility we are observing simply ill-timed fertility of a subsequent marriage? If so, then it should be generally followed rather quickly by remarriage. Table 1 indicates that while a quarter of these births are followed by marriage within a year, the majority are associated primarily with the date of disruption. Of course, these births need not be fathered by either the previous or an anticipated spouse. They may simply reflect continuing sexual exposure during a disorganized period in which contraception is difficult and at an age at which fertility control is usually inefficient. The sexual exposure of previously married women is probably much higher than that of never-married women of the same age (Kinsey, 1953).

Undoubtedly, all these potential explanations -- and more -- are operating. With the data we have from the 1970 National Fertility Study, it will not be possible to distinguish among them, nor is that our purpose here. Rather, the purpose of the rest of the paper is to carefully document the extent and character of this little known, yet socially important, phenomenon.

Fertility Subsequent to Marital Disruption

The closed intervals in Table 1 suggest that a birth during a period of marital disruption tends to occur in relation to the termination of a prior marriage rather than in relation to the beginning of the next marriage. Thus the analysis of the incidence of intermarital fertility

need not be confined to closed intervals, that is, those intervals that begin with a separation and are terminated by a remarriage. Since the 1970 National Fertility Study is a sample of ever-married women, it contains information on the open interval for women who were separated, widowed, or divorced at time of interview, that is, for women whose intermarital interval was terminated by the interview rather than by a remarriage.

If the analysis were restricted to closed intervals, there would be a risk of biasing the results because of a possible negative effect of intermarital fertility on the probability of remarrying. Such an effect is not unlikely given the fact that a premarital birth tends to be related to an older age at first marriage (Ryder and Westoff, 1971. Ch. 11). If having a birth during a marital disruption tends to postpone remarriage, then closed intervals would underestimate the incidence of intermarital fertility. For this reason, both closed and open intervals will be analyzed.

The inclusion of open intervals, however, introduces a set of problems which arise when open and closed intervals are used in the same analysis (Ryder, 1973). These problems arise because the structure of terminating the interval is typically unknown; and the shape of this structure can affect estimates of prevalence (see Menken and Sheps, 1970). One approach to this problem is to assume the schedule and incorporate its features into the analysis. For example, Sørensen (1975), in his analysis of job durations, assumed that the schedule had the properties of a Poisson distribution, that is, that the process lacked memory. Unfortunately, the investigator is rarely in the position of being able to assume or know the underlying distribution. For the present analysis, we know neither the

distribution for the probability of remarrying, nor the distribution for the probability of having an intermarital birth.

Another alternative is to use a life table procedure. Life table analysis has the advantage that it is not necessary to assume a particular function for the underlying distribution; in fact, life table analysis shows the shape of that distribution.[4] In addition to being methodologically defensible, life table routines are readily available in computer packages (Dixon, 1974).

The use of life table techniques has disadvantages, as well. One is that, at present, there is no conveniently available multivariate technique which incorporates the advantages of a life table approach. A second disadvantage of a life table approach is that it does not permit a simple answer to the question: "What proportion of women having an intermarital interval have an intermarital birth?" This question cannot be answered because the answer changes as the length of exposure changes. A final problem is that there is no convenient way to show the numbers of women used in the calculation of the life table parameters. The reason is that the base is continually getting smaller at each length of exposure as women are deleted because of being interviewed, getting remarried, or having a birth. In the following tables, we show the number of women at beginning and the "effective sample size," which reflects the initial sample size and the cumulative proportion surviving.[5]

The unit of analysis will be an interval begun by a separation or a death of a husband. Since some women have more than one such interval, some women may be represented more than once. Intervals can be terminated by an intermarital birth, by remarriage, or by the interview. It is the occurrence of intermarital births that is the subject of interest here.

Once an interval is terminated by a birth, there is still a period of intermarital exposure left; thus it is possible to examine intermarital intervals that begin with an intermarital birth. These intervals, like those that begin with a separation or death, can be terminated by an intermarital birth, by remarriage, or by the interview. Such intervals, those beginning with an intermarital birth, will not be included in the analysis of this section; they will, however, be analyzed in a subsequent section.

The cumulative percent having had a birth for intervals beginning with a separation or a death of the husband is shown in Table 2. The first column shows the cumulative percent for all disruptions; the next two columns show the cumulative percent for first disruptions and for second or greater disruptions, respectively. Among all disruption intervals, 26 percent experience an intermarital birth within the first 48 months. The cumulative percent experiencing an intermarital birth increases rapidly during the first 12 months following the marital disruption, and then, for the next three years, it increases at a slower pace.

The difference between first disruptions and second or greater disruptions is substantial (compare the last two columns of Table 2). Among first disruption intervals, the cumulative percent having experienced an intermarital birth within the first 48 months is 29 percent; among second or greater disruption intervals, the comparable figure is 4 percent. Part of the reason for this great disparity between first disruptions and second or greater disruptions involves differences in age at beginning of disruption. Age at beginning of disruption is necessarily greater for second and higher disruptions than for first disruptions; and, as will be

TABLE 2. Cumulative percent having had a birth for intervals beginning with a separation or a death of the husband for selected interval lengths by disruption order.

Months Since Interval Began	Total	First Disruption	Second or Greater Disruption
6	8	9	2
12	15	17	3
18	18	20	4
24	19	22	4
30	21	24	4
36	23	26	4
42	24	27	4
48	26	29	4
Number of women at disruption	1578	1370	208
Effective sample size	1054	919	191

seen in the next section, age at beginning of disruption is strongly related to the probability of having an intermarital birth. However, even when age at beginning of disruption is controlled (not shown), large but diminished differences remain between first and second or greater disruptions. We are unable to examine other explanations for this large differential -- perhaps they are "wiser" the second time.

Differentials

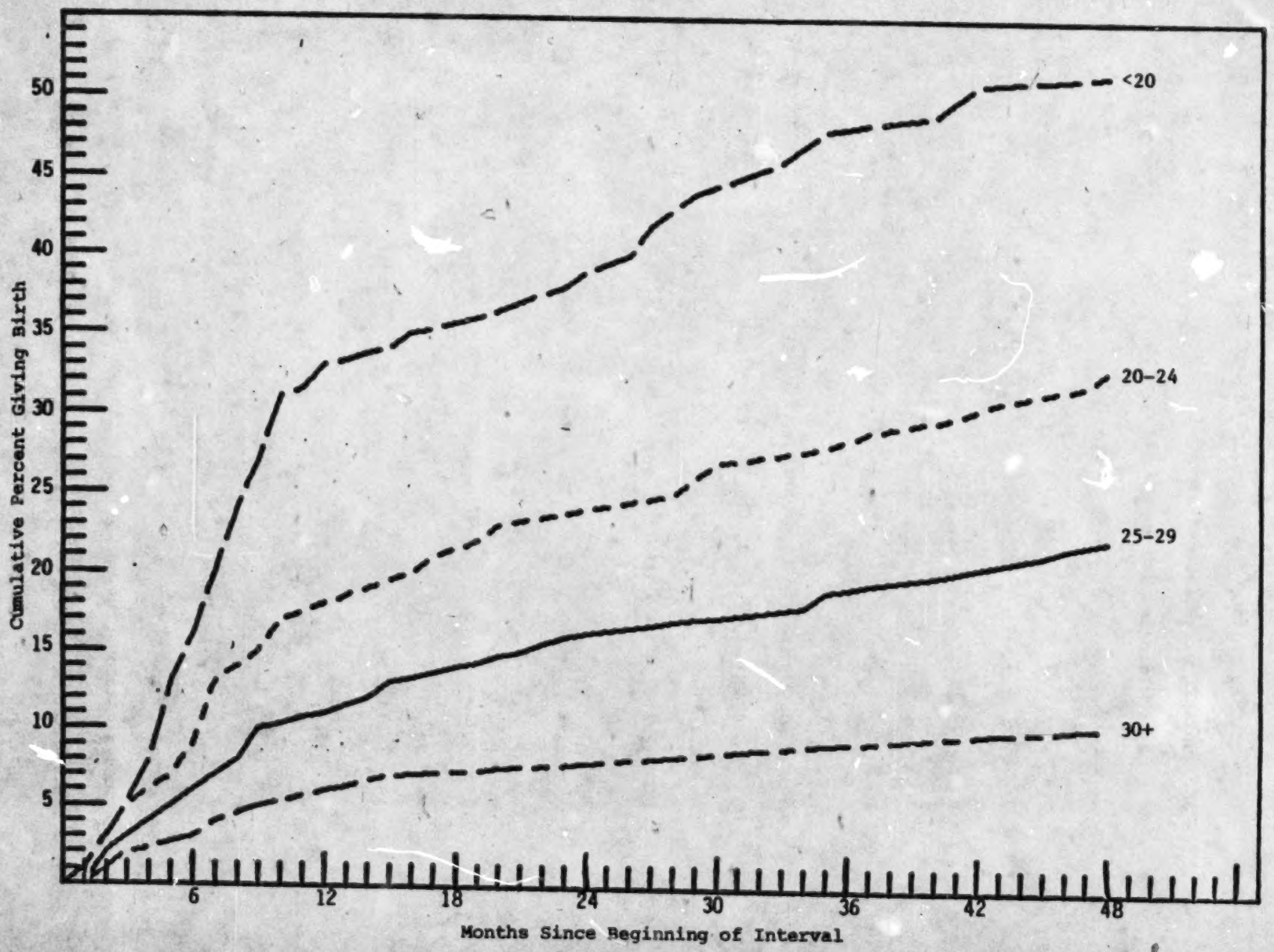
In order to further explore the phenomenon of intermarital fertility, this section examines the effect of such factors as parity, race, and education on the probability of having an intermarital birth, given the occurrence of a marital disruption. Most of the variables to be considered here are also related to the probability of having a marital disruption (Bumpass and Sweet, 1972; Sweet and Bumpass, 1974; Bumpass and Sweet, 1975). The procedure is to simply construct life tables for various subgroups, and then compare these life tables. All intermarital intervals beginning with a separation or a death of the husband are included, but intervals beginning with an intermarital birth are not included.

The probability of giving birth during an intermarital interval is strongly related to age at the beginning of the interval; this can be seen by looking at the first vertical panel of Table 3 and also at Figure 1. At the end of one year following a marital dissolution, the cumulative percent having had an intermarital birth is 33 percent for those who were aged less than 20 at the disruption and 6 percent for those aged 30 or more at the disruption. The values for those aged 20-24 and 25-29 are intermediate between those for the two extremes. The differential among the various age groups persist throughout the entire 48 month period (see Figure 1).

TABLE 3. Cumulative percent having had a birth for intervals beginning with a separation or a death of the husband for selected interval lengths, by age at disruption, parity at disruption, education, race, and religion.

Months Since Interval Began	Total	Age at Disruption				Parity at Disruption			Education				Race and Religion			
														White		
		<20	20-24	25-29	30+	0	1	2	<9	9-11	12	13+	Black	Total	Catholic	Non-Catholic
6	8	16	9	6	3	13	11	5	8	11	8	9	8	8	6	8
12	15	33	18	11	6	24	18	11	21	22	15	15	17	15	14	15
18	18	35	21	14	7	25	20	14	26	27	16	17	21	16	16	16
24	19	39	24	16	7	26	22	16	29	30	18	18	25	17	17	17
30	21	44	27	17	8	29	24	18	35	32	20	19	27	19	17	19
36	23	48	28	19	9	31	26	20	38	36	20	21	30	20	18	20
42	24	51	30	20	9	33	27	21	41	37	22	23	31	21	19	21
48	26	51	33	22	10	34	30	23	45	38	23	24	32	23	19	23
Number of women at disruption	1578	317	485	362	414	379	378	821	183	451	482	254	508	1041	174	867
Effective sample size	1054	200	304	247	283	271	245	533	123	294	325	192	386	654	140	511

FIGURE 1. Cumulative percent having had a birth for intervals beginning with a separation or a death of the husband for the first 48 months by age at disruption.



These large differences in intermarital fertility among the various age groups mirror differences found in marital fertility rates among these age groups. For example, in 1971 the following marital fertility rates were recorded (National Center for Health Statistics, 1975, Tables 1-31):

Age Group	Fertility Rate (Legitimate live births per 1000 married women)
15-19	416
20-24	224
25-29	155
30-34	75
35-39	31
40-44	8

Since a substantial share of intermarital fertility is conceived prior to the separation or death of the husband, the early (first 8 or 9 months of the disruption period) differences by age in the probability of an intermarital birth might be simply the result of differences in marital fertility by age.

However, these differentials persist through the four years following disruption, and all four age groups experience a similar two-stage process in the growth of the cumulative proportion giving birth. During the first year following disruption, the cumulative percent giving birth increases rapidly; during the next three years, the cumulative percent increases at a more gradual pace. Whatever the explanation, it is clear that age at time of disruption is strongly related to the probability of having an intermarital birth.

Table 3 also shows that the probability of an intermarital birth is related to the parity of the woman at the beginning of the disruption interval (second set of columns). Those who had two or more births prior to the disruption are less likely to have an intermarital birth than those

who had zero or one birth prior to the disruption. This is the relationship that would be expected, and undoubtedly it is a function of both motivation and experience.

It was expected that education would be inversely related to intermarital fertility, partly because of differences in contraceptive practice, partly because of differences in access to abortion,[6] and partly because of differences in age at disruption and in sexual exposure. As can be seen in Table 3, the expected differentials are found; and the principal differences occur between those who finished high school and those who did not. Between high school graduates and those who attended college, there are essentially no differences in the cumulative percent having had an intermarital birth; and only in the fourth year do differences appear between those who attended high school and those who did not. There are, however, substantial differences between those who completed high school and those who did not.

Table 3 also shows the cumulative percent having had an intermarital birth for various racial and religious groups (the last set of columns). during the first year after disruption, whites and blacks are similar in the proportion having an intermarital birth. During the subsequent three years, however, blacks have a substantially higher rate of having intermarital births than whites. Since this difference occurs after the first year of disruption, it is not a function of differences in marital fertility. Rather, its explanation involves differences in the use of effective contraception, differences in the availability of abortion, and differences in sexual exposure. Among white Catholics and white nonCatholics, differences in the cumulative percent having had an intermarital birth are very small, although there is a slight tendency for the differences to increase over time.

Trends in Intermarital Fertility

What is the trend in intermarital fertility? Since this phenomenon has not received attention previously, we do not have any baseline against which to compare. The topic may have been ignored in the past because marital disruption was the experience of a much smaller proportion of the population. Given the large increase in the dissolution of marriages (Glick and Norton, 1973), it is clear that the potential for intermarital fertility has increased substantially. This section examines the trend in the probability of having an intermarital birth, given the occurrence of a marital disruption. The trend to be examined is whether the conditional probability of intermarital births is different for those who have disrupted in recent years in comparison with those who disrupted earlier.

Since the 1970 National Fertility Study is the only ever-married sample available that has all the requisite information, the determination of trend will have to rely on a single cross-sectional survey -- always a hazardous procedure. For the present problem, the use of a cross-sectional survey is even more hazardous than usual because those intermarital intervals that began in the earlier time period have a different distribution on age at beginning of disruption than those intervals that began in the more recent time period; and, as shown in the previous section, age at beginning of disruption is strongly related to the probability of having an intermarital birth. The age at beginning of disruption distributions vary because of the use of an upper age limit on the 1970 National Fertility Study.[7] The 1970 NFS is a sample of all ever-married women aged less than 45. In order to have been disrupted in the 1950's and still be eligible for the 1970 NFS sample, a woman would have to have been disrupted at a comparatively early age. As the time interval under consideration approaches 1970, the

upper age limit at time of disruption approaches 45. For example, in order to have begun a disruption in 1952 and still be eligible for inclusion in the 1970 NFS, a woman would have to have been age 27 or younger at time of disruption. If, on the other hand, a disruption began in 1968, a woman would only have to have been age 43 or younger at time of disruption in order to be eligible for the 1970 NFS.

Therefore, it is necessary to control for age at beginning of disruption when examining the trend in intermarital fertility. This need to control for age at beginning of disruption constrains our ability to examine the trend in intermarital fertility in detail. In order to insure a sufficient number of cases, we have restricted the analysis to two time periods: a) intervals that began in 1950-1959, and b) intervals that began in 1960-1969; and we will also only examine the first 24 months of the disruption interval. These two time periods are examined within two age-at-beginning-of-disruption groups: under 20, and 20-24. The results are shown in Table 4.

Among those aged 20-24 at beginning of disruption, there was essentially no difference between the two decades in the proportion giving birth, and this similarity is found at each disruption length. Among those who disrupted at ages younger than 20, there is a tendency -- not statistically significant[8] -- for the cumulative percent experiencing an intermarital birth to be higher in the more recent period. However, even though there is no statistically significant trend in the conditional probability of having an intermarital birth, the incidence among the childbearing population has increased because of the increase in marital dissolution (Glick and Norton, 1973).

TABLE 4. Cumulative percent having had a birth for intervals beginning with a separation or a death of the husband for selected interval lengths by time disruption occurred and age at disruption.

Months Since Interval Began	Aged <20 at Dissolution		Aged 20-24 at Dissolution	
	Dissolution occurred:		Dissolution occurred:	
	1950-1959	1960-1969	1950-1959	1960-1969
6	16	20	10	9
12	33	39	19	18
18	35	40	23	23
24	40	44	23	26
Number of women at disruption	108	129	136	276
Effective sample size--unweighted	96	110	132	247

Intermarital Exposure Subsequent to an Intermarital Birth

Once an interval begun by a separation or death of the husband is terminated by an intermarital birth, there is still a period of intermarital exposure left. This section examines that exposure to see the extent to which intermarital births are followed by additional intermarital births.

Table 5 shows the cumulative percent having had a birth for intervals beginning with an intermarital birth; in other words, this is the conditional probability of having a birth before remarrying or being interviewed, given the occurrence of a marital disruption and given the occurrence of at least one birth during that disruption. Because the unit of analysis in Table 5 is intervals rather than respondents, respondents who have had more than one intermarital birth will be represented more than once. Since it is possible, because of progressive selectivity, that intervals begun by a first birth within a marital disruption may differ from second and higher order births within a marital disruption, life tables were examined for first births and for second and higher order births. These are shown in the last two columns in Table 5. It should be noted that "birth order" here refers to the birth order within a particular disruption interval; births that occurred prior to the given separation or death of husband are not included in the determination of "birth order."

For all intervals beginning with an intermarital birth, the cumulative percent having had a birth by the end of four years is 40 percent. This is substantially higher than the comparable percent for all intervals beginning with a separation or a death of the husband (see Table 2). Furthermore, the shapes of the two distributions are also substantially different. The cumulative percent giving birth for intervals beginning with a separation or a death of the husband rises most rapidly during the first year after

TABLE 5. Cumulative percent having had a birth for intervals beginning with an intermarital birth for selected interval lengths by birth order* of birth initiating interval.

Months Since Interval Began	Total	First Birth within Marital Disruption Interval	Second or Greater Birth within Marital Disruption Interval
6	0	0	0
12	3	3	5
18	12	8	25
24	18	13	37
30	25	18	48
36	32	24	56
42	36	29	59
48	40	33	64
Number of women at disruption	489	342	147
Effective sample size-unweighted	272	183	87

* "Birth order" here refers to the birth order within a particular disruption interval. Births that occurred prior to the given separation or death of husband are not included.

disruption, and then rises at a more gradual pace. For intervals beginning with an intermarital birth, however, the cumulative percent giving birth is necessarily zero during the first ten months or so because of the time required to again conceive and bear a child. After the first year, the cumulative percent giving birth increases rapidly.

Intervals initiated by a first birth within a marital disruption differ substantially from intervals initiated by a second or higher order birth. The cumulative percent giving birth is 0 for both groups for the first nine months or so; but thereafter the rise is far greater among intervals beginning with a second or higher order intermarital birth. By the end of four years, the cumulative percent is 64 for intervals begun by a second or higher order intermarital birth and 33 percent for intervals begun by a first intermarital birth. Presumably intervals begun by second or higher order births are progressively selective of women who either prefer to have children during the disruption or are unwilling to take the necessary steps to prevent unplanned fertility. It is very likely that much of the "nonmarital experience" represented in second and subsequent intermarital birth intervals includes rather stable consensual unions that are not reported as marriages.

Prevalence of Intermarital Fertility

The life table approach used in the previous sections estimates the monthly probabilities of an intermarital birth given that a marital dissolution has occurred. However, this approach does not provide a convenient summary of the prevalence of intermarital fertility, nor does it provide a multivariate approach to the analysis of differential prevalence. Among women whose first marriage has dissolved, subgroup

differences in the prevalence of intermarital fertility are a product differential monthly probabilities of pregnancy given disruption, and differential remarriage rates which affect the length of exposure to risk. When total cohort prevalence is examined, differentials are also a product of differential marital disruption in addition to the above factors. The difference between rates and prevalence needs to be kept clear. This section examines the prevalence of intermarital fertility, both among the general population of ever-married women and among the more restricted population of ever-married women who have experienced a marital disruption.

The analysis is restricted to older women in order to minimize any underestimate (and associated bias) resulting from having some period of risk of intermarital fertility remaining. This possible underestimate is minimized because of the relatively low rate of intermarital fertility among women who disrupt after 30 (see Table 3). Table 6 presents differentials in the experience of an intermarital birth for women aged 30-44 whose first marriage was disrupted and for all ever-married women 30-44. There are substantial subgroup differences around the total means of 22 percent for the ever-disrupted and 5 percent for the total cohort. In the second column of each set of columns, the subgroup means for each category have been adjusted by a dummy variable multiple regression analysis for the effects of the other variables shown in the table.

As we would expect from the life table analysis, the major differential in the prevalence of intermarital fertility is by the woman's age at the time of separation among ever-married women who experienced a disruption. Almost half of the women who separated as teenagers experienced an intermarital birth as compared to less than a tenth of those who separated in their thirties. It seems likely that age-related effects on contra-

TABLE 6. Differentials in the prevalence of intermarital fertility among women aged 30-44 in 1970, for women whose first marriage was disrupted and for all ever-married women.

	Ever Disrupted			All Ever Married		
	Obs.	Adj.[a]	N[b]	Obs.	Adj.[a]	N[b]
Total	.22		895	.05		3590
Age at Separation						
<20	.44	.43	153			
20-22	.30	.29	131			
23025	.25	.27	129			
26-29	.21	.20	180			
30+	.08	.08	302			
Age at Marriage						
<18				.11	.08	768
18-19				.05	.05	1036
20-21				.04	.04	818
22-24				.02	.04	582
25+				.02	.03	378
Race						
White	.19	.20	306	.04	.04	646
Black	.33	.29	578	.16	.10	2869
Education at First Marriage						
0-8 years	.33	.31	160	.11	.09	436
9-11 years	.28	.23	314	.10	.07	850
12 years	.15	.18	292	.03	.04	1516
College, 1-3 years	.18	.23	90	.03	.05	490
College, 4+ years	.08	.18	37	.01	.03	294
Premarital Pregnancy or Birth[c]						
Premarital birth	.37	.33	86	.12	.07	231
Premarital pregnancy	.24	.22	102	.08	.06	338
Other	.21	.22	707	.04	.05	3021
Current Marital Status						
Married	.24	.22	429	.03	.04	3124
Other[d]	.20	.23	466	.20	.18	466
Religion						
Protestant	.25	.23	689	.06	.06	2495
Catholic	.21	.23	123	.03	.04	794
Other	.09	.13	83	.02	.03	301

[a]Means adjusted through dummy variable multiple regression analysis for the effects of the other variables shown.

[b]Unweighted.

[c]Status with respect to date of first marriage.

[d]Currently separated, widowed, or divorced.

ceptive use play a major role in the experience of an intermarital birth. Such effects probably include age differences in the ease of access to contraception and in the willingness to accept the self-definition involved in contraceptive use while separated or divorced, as well as maturational differences in calculating risk-taking decisions. These factors are reflected in the differences by age at marriage for the total group of ever-married women. One of every ten women who married before age 18 experienced an intermarital birth.

Intermarital births are more likely among blacks, among women of lower education, and among women who had a premarital birth. One-sixth of all black women in this cohort (one-third of blacks whose first marriage disrupted) had an intermarital birth. The experience of a birth before marriage is highly associated with intermarital fertility if the marriage disrupts: 37 percent of women with a premarital birth and marital disruption also had an intermarital birth. It is interesting that the experience of a premarital pregnancy (legitimated by marriage) is not associated with subsequent intermarital fertility after adjustment. While there is no difference in the adjusted figures by current marital status for the ever-disrupted, there is a strong difference for the total group of ever-married women. This simply reflects the low proportion of the total group who are currently in their second or later marriage.

There is no difference between Protestants and Catholics among the ever-disrupted after adjustment is made for other factors. The observed difference is a likely consequence of the younger age at separation for Protestants. The considerably lower rate for "others" is interesting. Among the total group, the somewhat higher prevalence for Protestants reflects their greater incidence of marital disruption.

Summary and Implications

A substantial proportion of women whose first marriage disrupted have given birth during the period of disruption; among women who remarried, it is evident that intermarital births tend to cluster near the marital dissolution rather than near the remarriage. The monthly rate of intermarital fertility is greater during first disruptions, and among women who are comparatively young at time of disruption or have had few children prior to the disruption.

No trend was found in the conditional probability of having an intermarital birth given that a disruption has occurred. However, in view of the increase in the probability of marital dissolution in the past decade, the overall prevalence of intermarital fertility has probably increased. The extent to which the experience of intermarital fertility will increase or decrease in the near future is impossible to forecast. A number of factors operating in opposite directions are in flux. On the one hand, increases in marital disruption greatly expand the proportion of the population for whom intermarital fertility is possible. On the other hand, increases in age at marriage may reduce the proportion of all disruptions that occur at the very young ages where rates are the highest. And, of course, changes in patterns of contraceptive use and abortion could reduce rates at all ages.

The prevalence of intermarital fertility that we have documented is largely in addition to the prevalence of illegitimacy as legally understood, and as reported by the National Center for Health Statistics. Most of the social policy concerns addressed to "illegitimate" births are appropriate as well for births that occur during periods of marital disruption. Furthermore, as we have suggested, similar policy issues

in access to and use of fertility control may be involved, especially among younger women.

It is instructive to note that intermarital fertility has been of roughly the same magnitude as premarital fertility among women aged 30-44 in 1970. Yet it is only illegitimate fertility, the bulk of which is premarital, that has received attention from demographers, policy makers, and the general public. Our findings suggest that those social and economic conditions usually associated with illegitimacy describe a far larger group of children and women than was previously thought to be the case. This, coupled with the substantial decline in marital fertility during the past decade and a half, implies the entire area of nonmarital fertility warrants increased research and policy concern.

Footnotes

[1]A birth is considered legitimate if it is conceived or born within a legal marriage.

[2]The 1970 National Fertility Study is a multipurpose study based on a national probability sample of 6,752 ever-married women under 45 years of age residing in the continental United States (Ryder and Westoff, forthcoming).

[3]The 1965 National Fertility Study is a multipurpose study based on a national probability sample of 5,981 currently married women, under age 55 residing in the continental United States (Ryder and Westoff, 1971).

[4]In a life table analysis, data are reorganized into units of exposure to the risk under examination. For each successive exposure period, it is possible to calculate the proportion "dying," that is, the proportion experiencing the event in question. This proportion is the number of "deaths" occurring in the exposure period divided by the number "alive" at the beginning of the period. The proportion "surviving" is obtained by subtracting the proportion "dying" from unity; and the cumulative proportion surviving is simply the cumulative product of the proportion surviving. (Readers desiring a more extensive discussion of the life table should see Barclay, 1958, or Potter, 1966.)

[5]The effective sample size is given by $\frac{P(1-P)}{s^2}$ where P is the cumulative proportion surviving and s is the standard error.

[6]The fertility examined here occurred prior to the recent liberalization of abortion.

[7]The problem being discussed here is one of a larger set of problems that have been discussed elsewhere by Ryder (1973).

[8]Primarily because of the small numbers of women involved, the standard errors are comparatively large. For both sets of cumulative percents, the standard errors range from 0.04 to 0.05.

References

Barclay, G. W.
1958 Techniques of Population Analysis. New York: John Wiley & Sons.

Bumpass, L. L., and J. A. Sweet
1972 "Differentials in Marital Instability: 1970," American Sociological Review 37 (December):754-66.

1975 "Early Female Employment and Family Planning Factors in Marital Disruption," Paper presented at the 70th annual meetings of the American Sociological Association.

Cutright, P.
1973 "Illegitimacy and Income Supplements," pp. 90-138 in The Family, Poverty, and Welfare Programs: Factors Influencing Family Instability. Studies in Public Welfare, Paper No. 12. Washington, D.C.: U.S.Government Printing Office.

Dixon, W. J.
1974 BMD: Biomedical Computer Programs. Berkeley: University of California Press.

Gendell, M., and J. van der Tak
1974 "Illegitimacy Ratios in Large Cities: Determinants and Implications," American Journal of Public Health (July).

Glick, P. C., and A. J. Norton
1973 "Perspectives on the Recent Upturn in Divorce and Remarriage," Demography 10:301-14.

Hartley, S. F.
1975 Illegitimacy. Berkeley: University of California Press.

Kinsey, A. C.
1953 Sexual Behavior in the Human Female. Philadelphia: W. B. Saunders Co.

Luker, K.
1975 Taking Chances. Berkeley: University of California Press.

Menken, J. A., and M. C. Sheps
1970 "On Relationships between Longitudinal Characteristics and Cross-Sectional Data," American Journal of Public Health 60 (August).

Miller, W. B.
1973 "Psychological Vulnerability to Unwanted Pregnancy," Family Planning Perspectives 5:199-201.

Potter, R. G.
1966 "Application of Life Table Techniques to Measurement of Contraceptive Effectiveness," Demography 3:297-304.

Rainwater, L.
1965 Family Design: Marital Sexuality, Family Size and Contraception. Chicago: Aldine.

Ryder, N. B.
1973 "A Critique of the National Fertility Study," Demography 10 (November):495-506.

Ryder, N. B., and C. F. Westoff
1971 Reproduction in the United States, 1965. Princeton, N.J.: Princeton University Press..

forthcoming The Contraceptive Revolution. Princeton, N.J.: Princeton University Press.

Sklar, J., and B. Berkov
1974 "Abortion, Illegitimacy, and the American Birth Rate," Science 185 (September 13):909-15.

Sørensen, A. B.
1975 "Estimating Durations from Retrospective Questions; or How the Present Affects the Past." CDE Working Paper 75-8, Center for Demography & Ecology, University of Wisconsin-Madison.

Sweet, J. A., and L. L. Bumpass
1974 "Differentials in Marital Instability of the Black Population: 1970," Phylon 35:323-31.

U.S. Bureau of the Census
1974 Current Population Reports, Series P-20, No. 263, "Fertility Histories and Birth Expectations of American Women: June 1971." Washington, D.C.: U.S. Government Printing Office.